



# **12Gbps SAS Expander JBOD Enclosure User's Manual**

4U 24-Bay

NS385S-8028

5U 48-Bay

NS390S-8028

12Gbps SAS Expander JBOD Enclosure

Version : First Edition

Issue Date : September 2014

# SAFETY PRECAUTIONS

Please read this section carefully before proceeding. These precautions explain the correct and safe use of this device, thereby helping to prevent injury to you or others, and also help you to minimize the risk of damaging the device.

## Warnings

Always follow the basic warnings listed here to avoid the risk of serious injury or death from electrical shock, short-circuiting, fire, and other hazards. These warnings include, but are not limited to:

- With the exception of the user-swappable parts, do no attempt to disassemble or modify the enclosure. If this device appears to be malfunctioning, contact Netstor Customer Service.
- Do not drop the enclosures or any of its drive modules; dropping or mishandling of the enclosure or drive modules may result in a malfunction.
- Do not insert your fingers or foreign objects inside the enclosure; take particular care when small children are present.
- Do not expose the device to rain, use it near water or containers that contain liquids which might spill into any openings, or in damp or wet conditions.
- If unusual smells, sounds, or smoke come from the device, or if liquids enter it, switch it off immediately and unplug it from the electrical outlet.
- Follow the instructions in this manual carefully; contact Netstor Customer Service for additional advice not covered in this User's Guide.

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# 1. Introduction

## 1.1 Overview

Netstor's enterprise-class 12Gbps SAS Expander JBOD enclosures are designed to provide storage expansion for 12G/6Gbps SAS RAID card. The enclosure is equipped with 12Gbps SAS Expander supporting high-reliable SAS 12G/6G/3Gbps or high-capacity SATA 6G/3Gbps HDDs via single or dual SFF-8644 HD mini-SAS cable host connectivity. Through the extra HD mini-SAS ports, expansion to more 12Gbps SAS Expander enclosures is available, ensuring it the most cost-effective storage expansion.

## 1.2 Package Checklist

Before the installation of the enclosure, verify the items below are included in the package.

☐ NS385S-8028

- A. Enclosure × 1
- B. HDD tray (installed in the NS385S-8028) × 24
- C. Power cord × 2
- D. CD containing user's manual × 1
- E. HDD mounting screw × 96
- F. Key for HDD tray × 2
- G. HD mini-SAS (SFF-8644) to HD mini-SAS (SFF-8644) data cable (optional) × 1

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A. Enclosure × 1

B. HDD tray (installed in the NS390S-8028) × 48

C. Power cord × 2

D. CD containing user's manual × 1

E. HDD mounting screw × 192

F. Key for HDD tray × 2

G. HD mini-SAS (SFF-8644) to HD mini-SAS (SFF-8644) data cable  
(optional) × 2

If any of the items listed above is missing or damaged, please contact the sales representative.



## 2. Hardware Installation

This section gives the layout of enclosure's panel and describes the procedures for setting up the SAS Expander enclosure.

### 2.1 Panel Layout

□ NS385S-8028

#### Front panel

1. Drive presence LED  
White – Power On
2. Activity indicator LED  
Blue – HDD ready  
Flash blue – Access  
Flash pink – Rebuilding  
Red – HDD failure



#### Rear panel

3. Power switch button
4. Power cord receptacle
5. LCD display – see Chapter 3 on page 11 for LCD configuration
6. Enclosure power LED  
Green – Power On
7. Busy LED  
Flash green – Host computer accessing the enclosure
8. Fault LED  
Unlit – Enclosure normal  
Red – Enclosure failure
9. Link LED

There are three SAS ports, CH2, CH1, CH0, on SAS Expander. Each SAS port includes four links; each link has 12Gbps bandwidth maximum.

- (1) When green link LED is lit for 4 seconds, it indicates four links have connected for 48Gbps.
- (2) When green link LED is lit for 2 seconds and light off for 2 seconds, it indicates two links have connected for 24Gbps.
- (3) When green link LED is lit for 1 second and light off for 3 seconds, it indicates only one link is connected for 12Gbps.

#### 10. Activity LED

Blue – When activity LED illuminates, it indicates SAS host accesses to NS385S-8028.

#### 11. SAS Exp. out connector (SAS CH2)

#### 12. SAS Exp. in connector (SAS CH1)

#### 13. SAS Exp. out connector (SAS CH0)

#### 14. RJ-45 LAN connector – reserved for future function upgrade

#### 15. RJ-11 for CLI configuration

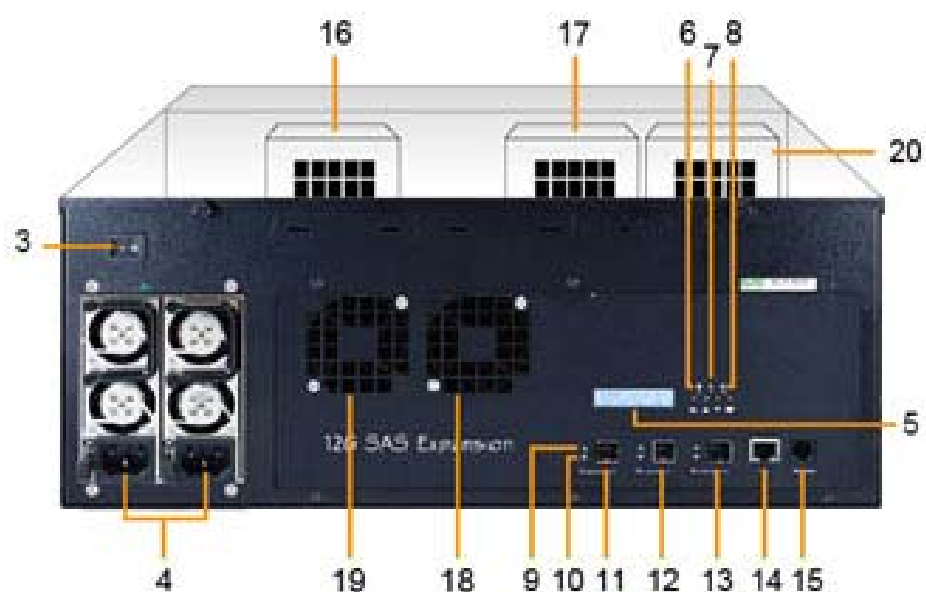
#### 16. Fan 1

#### 17. Fan 2

#### 18. Fan 3

#### 19. Fan 4

#### 20. Fan 5

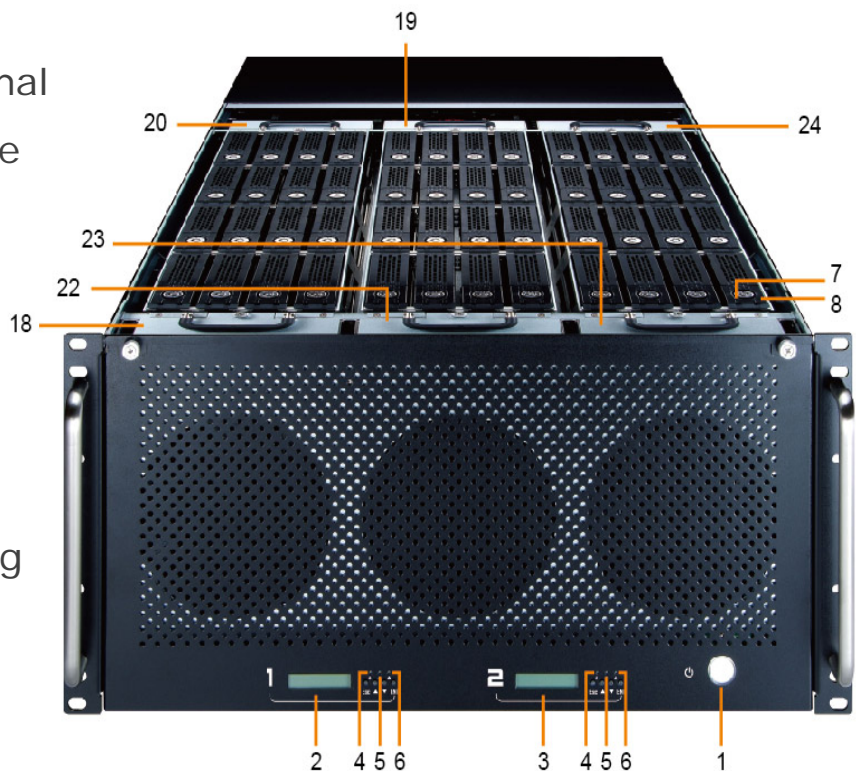




## □ NS390S-8028

### Front panel

1. Power On/Off Button
2. LCD display one
3. LCD display two
  - see Chapter 3 on page 11 for LCD configuration
4. Enclosure power LED
  - Green – Power On
5. Busy LED
  - Flash green – Host computer accessing the enclosure
6. Fault LED
  - Unlit – Enclosure normal
  - Red – Enclosure failure
7. Drive presence LED
  - White – Power On
8. Activity indicator LED
  - Blue – HDD ready
  - Flash blue – Access
  - Flash pink – Rebuilding
  - Red – HDD failure



### Rear panel

9. Power switch button
10. Power cord receptacle
11. SAS Exp. out connector (SAS CH2)
12. SAS Exp. in connector (SAS CH1)
13. SAS Exp. out connector (SAS CH0)

#### 14. Activity LED

Blue – When activity LED illuminates, it indicates SAS host accesses to NS390S-8028.

#### 15. Link LED

There are three SAS ports, CH2, CH1, CH0, on SAS Expander. Each SAS port includes four links; each link has 12Gbps bandwidth maximum.

(1) When green link LED is lit for 4 seconds, it indicates four links have connected for 48Gbps.

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16. RJ-45 LAN connector – reserved for future function upgrade

17. RJ-11 for CLI configuration

18. Fan 1

19. Fan 2

20. Fan 3

21. Fan 4

22. Fan 5

23. Fan 6

24. Fan 7

25. Fan 8



## 2.2 System Setup

The section of system setup includes host part and enclosure part. Settings to both parts need to be done for configuration.

### 2.2.1 Host Setup

The host must have a 12G/6Gbps SAS RAID card for connection with SAS Expander enclosure. The driver of RAID card needs to be installed on operating system to allow RAID card work with enclosure.

### 2.2.2 Enclosure Setup

Detailed procedures on setting up SAS Expander enclosure are provided in the following sub-sections.

#### 2.2.2.1 Getting Started

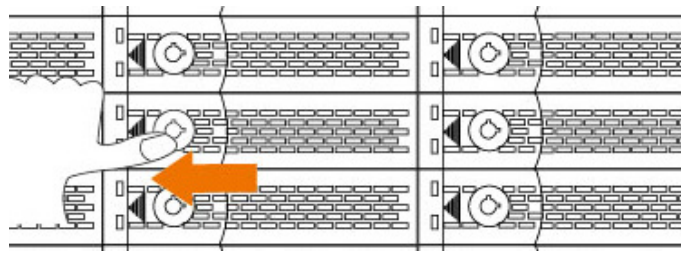
Remove SAS Expander enclosure from its packaging. Arrange the enclosure near host PC, server, or workstation.

#### 2.2.2.2 HDD Installation

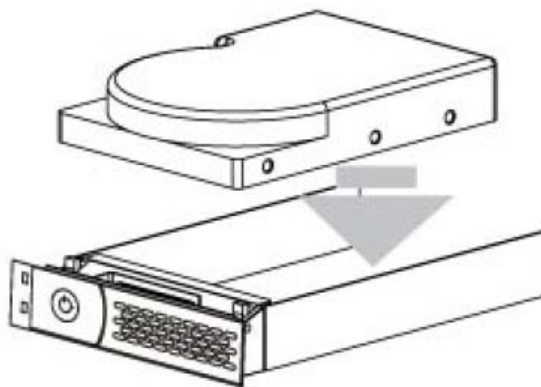
1. The HDD tray can be pulled out directly if drive trays are in front. If drive trays are built on top side, remove the top cover by loosening the two thumbscrews in front for accessing the drive tray.



2. Hold one of the HDD trays from the enclosure. Push its button leftward for releasing the lever until the lever pops out.

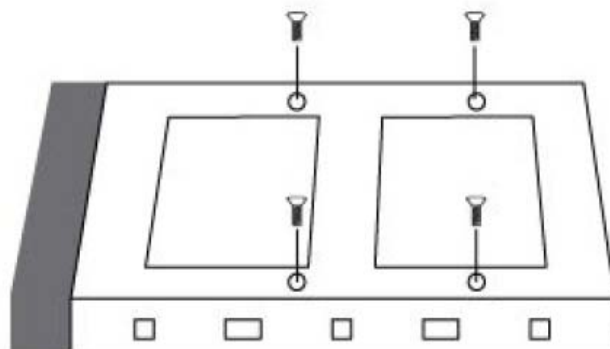


3. Place the drive tray on a flat surface. Attach the HDD into tray.



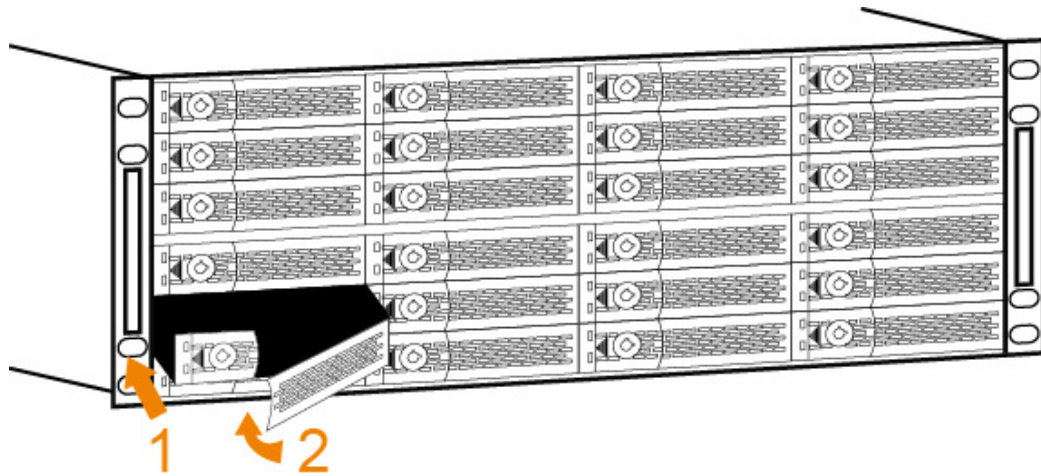
The heads of the four screws must be level with the drive tray when the HDD is attached to it. Otherwise, a screw can take hold of the tray from the side and prevent the tray to be pulled out of the array.

4. Adopt four of the screws provided, and fasten the HDD on tray.  
Tighten each screw to fasten the drive snugly to tray. Do not overly tighten the screws.



Do not force the lever to close when inserting the drive tray into enclosure. If a lever does not close smoothly, draw out, insert the drive tray again, and press the lever to close.

5. Insert the drive tray into enclosure correctly until its lever appears to shut, and press the lever to close until it clicks to ensure drive tray is properly installed in enclosure.



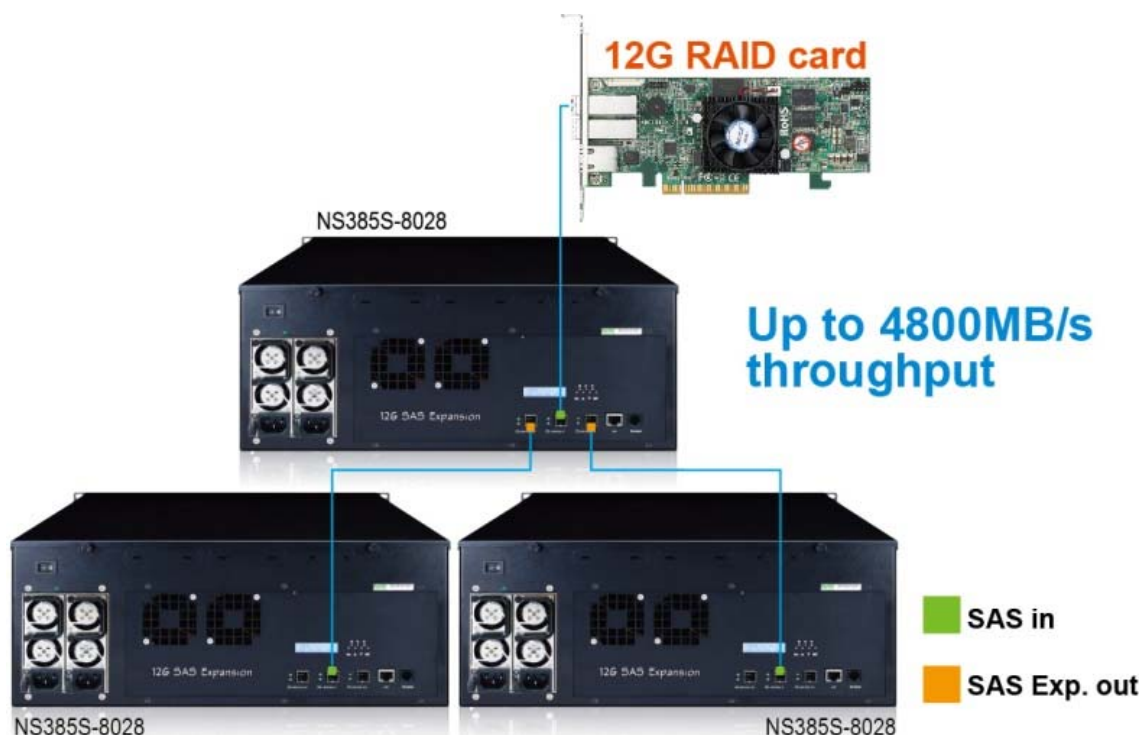
6. Repeat steps 2 to 5 for further drives.

### 2.2.2.3 Connection between SAS Expander enclosure and host

#### NS385S-8028

Connect SAS Expander enclosure to the host through data cable.

Diagram for connection between enclosure and host is shown below:

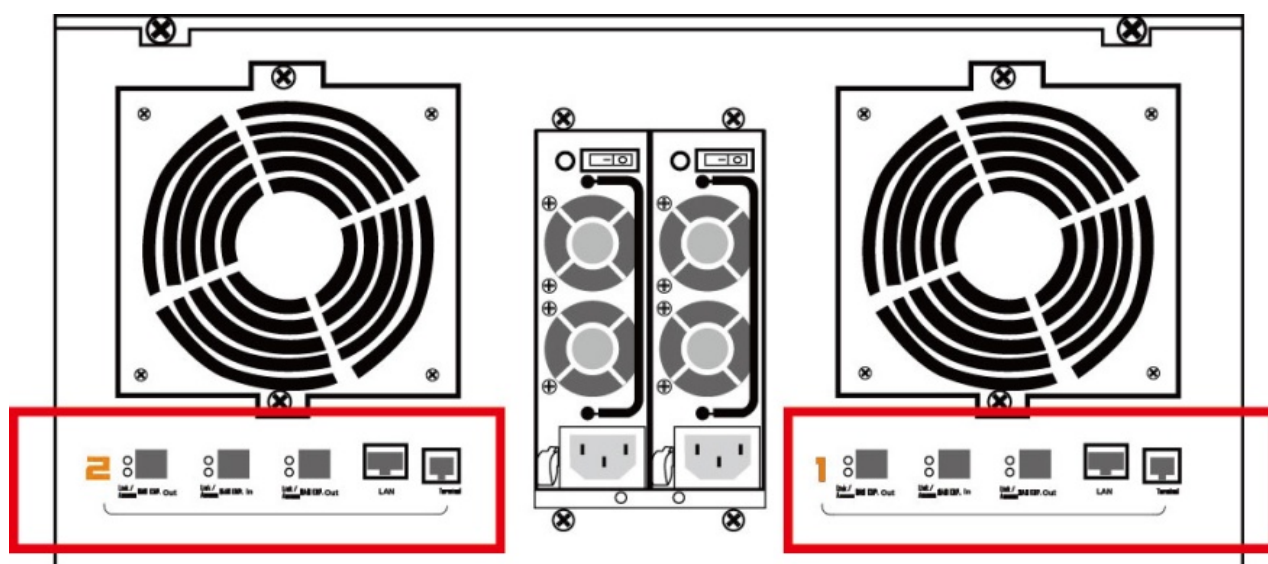




Recommended connection:

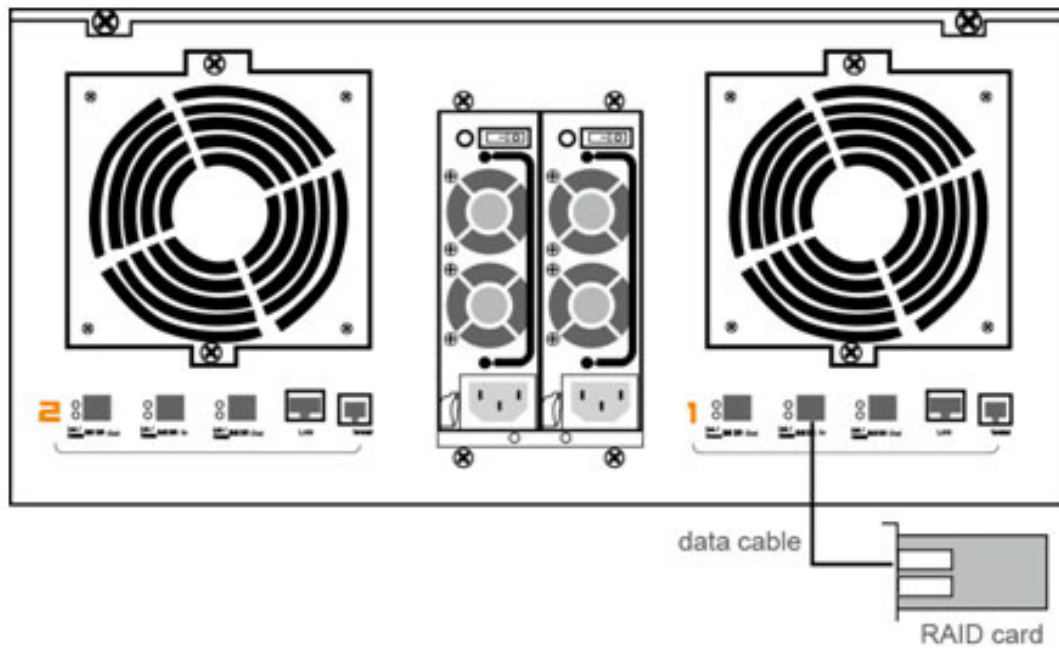
RAID card with two external ports connecting SAS Expander enclosure for faster speed connection.

1. At rear of SAS Expander enclosure, there are two SAS Expanders numbered 1 and 2 from right to left. SAS Expander 1 is the first SAS Expander inside the enclosure and SAS Expander 2 is the second.

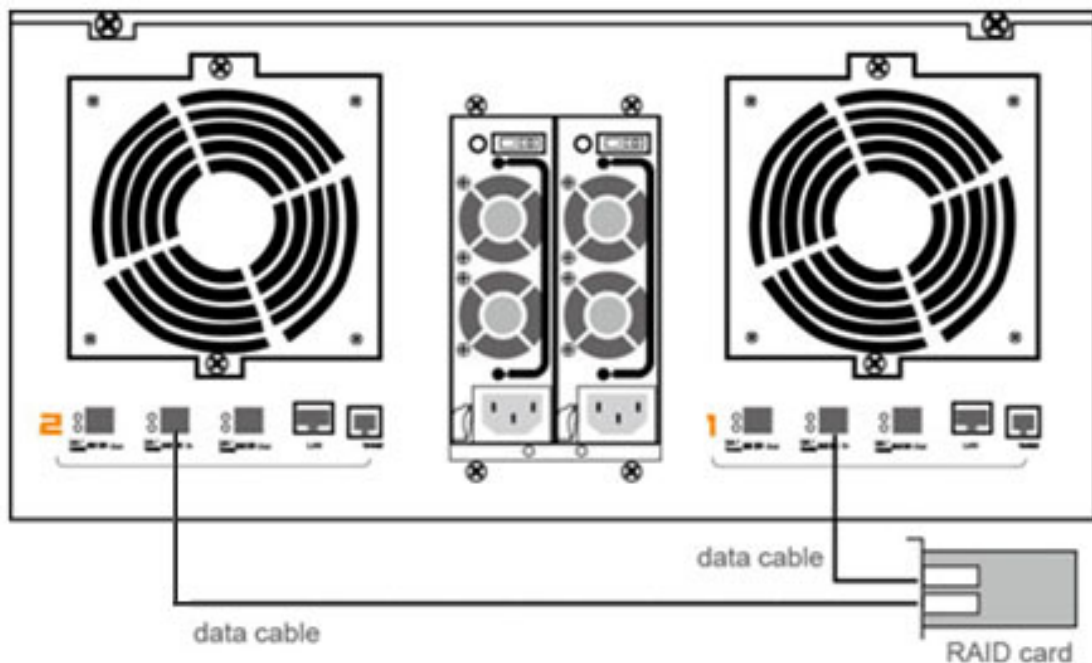


2. Connect one end of data cable to the first port on RAID card at host side, and connect the other end of data cable to SAS Exp. In connector (SAS CH1) on SAS Expander 1.





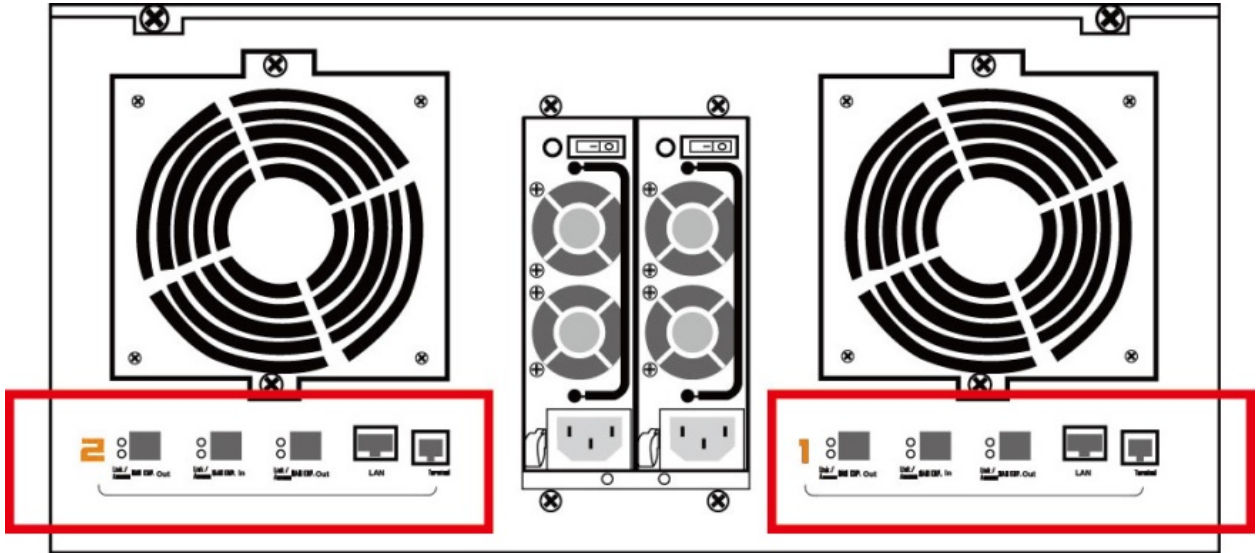
3. Connect one end of data cable to the second port on RAID card at host side, and connect the other end of data cable to SAS Exp. In connector (SAS CH1) on SAS Expander 2.



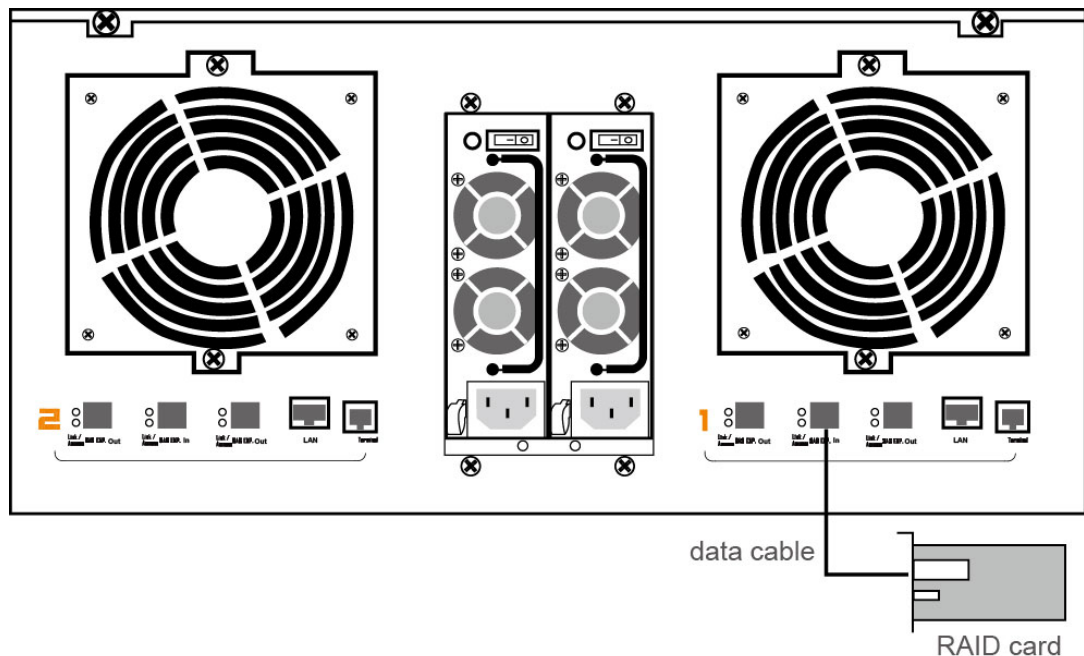
Optional connection:

RAID card with only one external port connecting SAS Expander

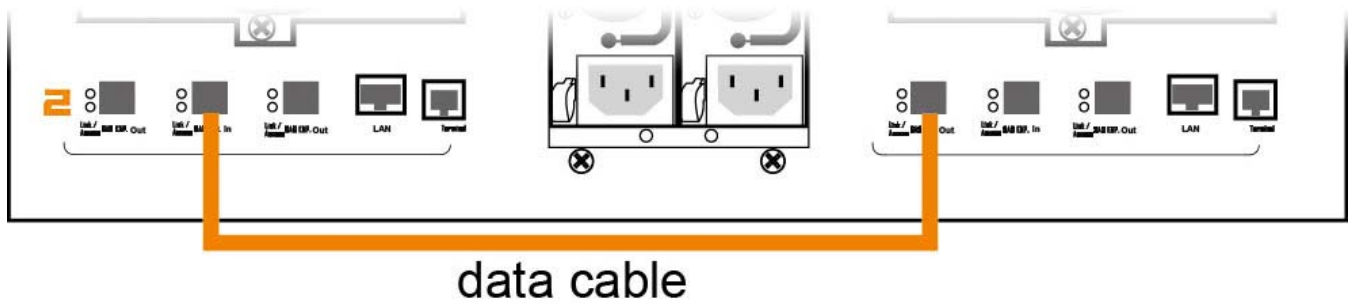
1. At rear of SAS Expander enclosure, there are two SAS Expanders numbered 1 and 2 from right to left. SAS Expander 1 is the first SAS Expander inside the enclosure and SAS Expander 2 is the second.



2. Connect one end of data cable to RAID card at host side, and connect the other end of data cable to SAS Exp. In connector (SAS CH1) on SAS Expander 1.



3. Connect one end of data cable to the left SAS Exp. Out connector (SAS CH2) on SAS Expander 1, and connect the other end of data cable to SAS Exp. In connector (SAS CH1) on SAS Expander 2.



#### 2.2.2.4 RAID Setup

To set up RAID volume on enclosure, users need to set volume from GUI interface of RAID card. Refer to RAID card's user guide for RAID configuration.

#### 2.2.2.5 Add more SAS Expander enclosures

Users can add more enclosures according to their demands for storage. The SAS Expander enclosure can run in one of the following two modes:

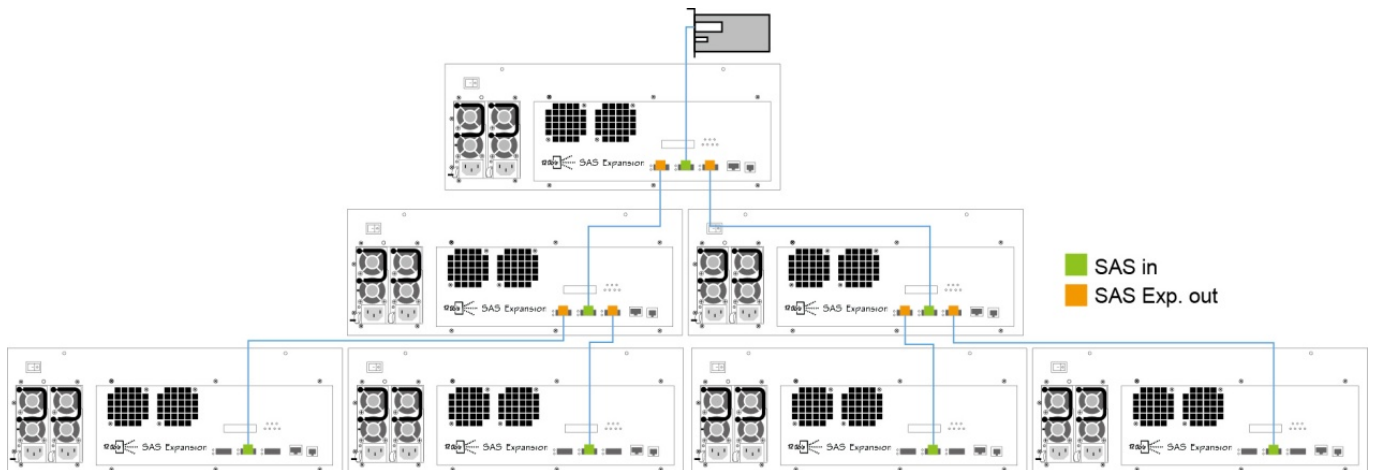
1. Normal Mode **(default)**
2. Zone Mode

Either mode must be selected using CLI utility – see Chapter 4 on page 15 for CLI configuration. The manufacturer's default is at Normal Mode. Change the mode when SAS Expander enclosure is powered on. The change will not take effect until SAS Expander enclosure is rebooted. To access the cascaded SAS Expander enclosures through one host, the user only needs to use the default Normal Mode.

To allow two hosts with each computer installed with a RAID card to share the same cascaded SAS Expander enclosures, the enclosure needs to be set as Zone Mode.

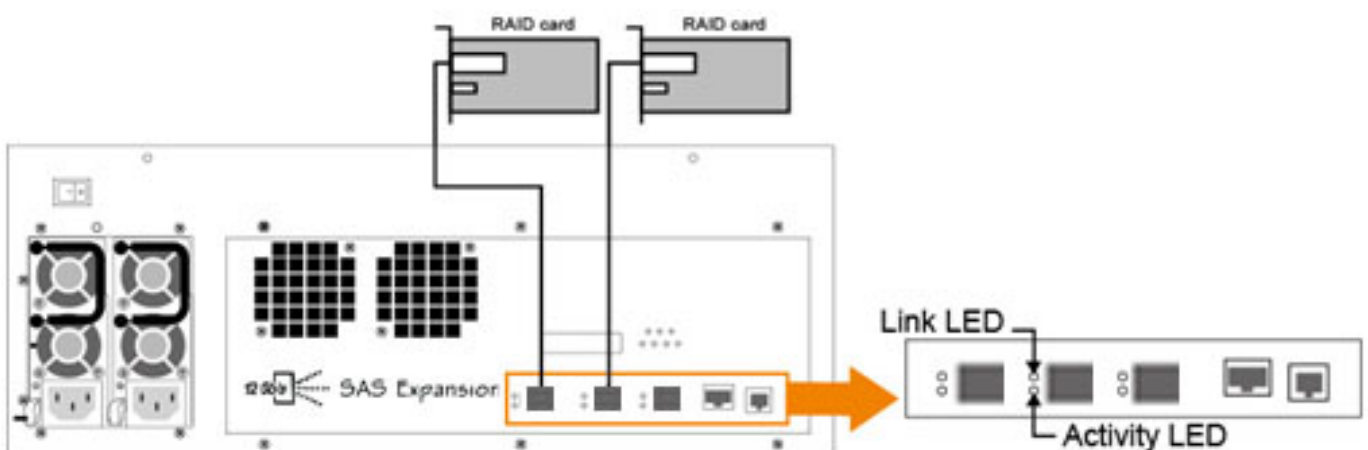
## 1. Normal Mode

The host can communicate with all the drives in the cascaded SAS Expander enclosures. The number of HDDs the cascaded enclosures can support depends on RAID card's firmware. The following figure shows the connection between host and cascaded SAS Expander enclosures.



## 2. Zone Mode

The following figure shows SAS Expander enclosure that is split into two virtual groups. Each group's drive channel is controlled by individual host's RAID card using SAS CH1 and SAS CH2. Refer to section 4.3 CLI Command for gr command.



For enclosure monitoring and configuration, users can choose either LCD or CLI.

LCD includes functions covering fan, temperature, voltage monitoring, HDD link speed, and enclosure alarm. Refer Chapter 3 for LCD configuration.

For CLI, besides having all LCD's functions, it also includes system information, event log, firmware update, and configuration of

## 3. LCD Configuration Manager

The SAS Expander enclosure's LCD is a character-based utility that can be used after the unit is powered on. Use LCD configuration utility to monitor and configure:

- Alerts Menu
- Voltage
- Set Link
- Set Alarm
- Set Password
- Save Config
- System Reset

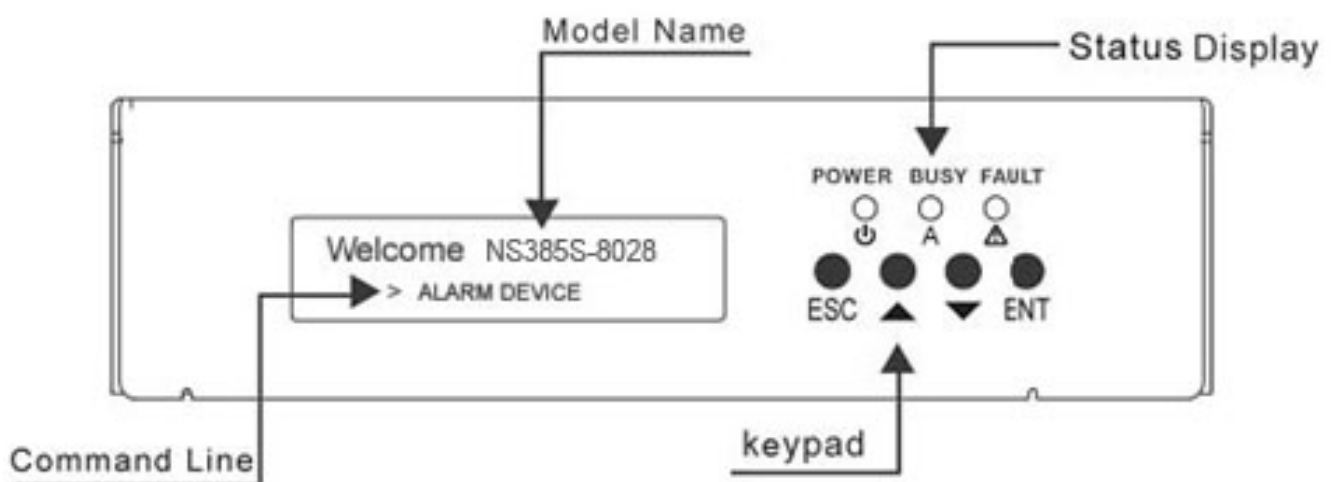
The LCD function keys are the primary user interface for SAS Expander enclosure. Except for the "Firmware update", all configurations can be made through the interface.

## 3.1 Using Touch-Control Keypad

The keypad and LCD is the primary user interface for the SAS Expander enclosure. All configurations, enclosure management and its properly connected disk arrays can be performed via the interface. The keypad and LCD are connected to the SAS Expander enclosure to access the built-in configuration that resides in the firmware of SAS Expander.

The LCD provides info that includes menu and status information. The LCD screen shows up to two lines at a time of menu items or other information.

The initial screen is shown as follows:



### Function Key Definitions:

The four function keys to the right of LCD perform the following functions:

Key	Function
Up Arrow	Use to scroll the cursor Upward / Rightward
Down Arrow	Use to scroll the cursor Downward / Leftward
ENT Key	Submit selected icon function (Confirm a selected item)
ESC Key	Return to previous screen (Exit a selection configuration)



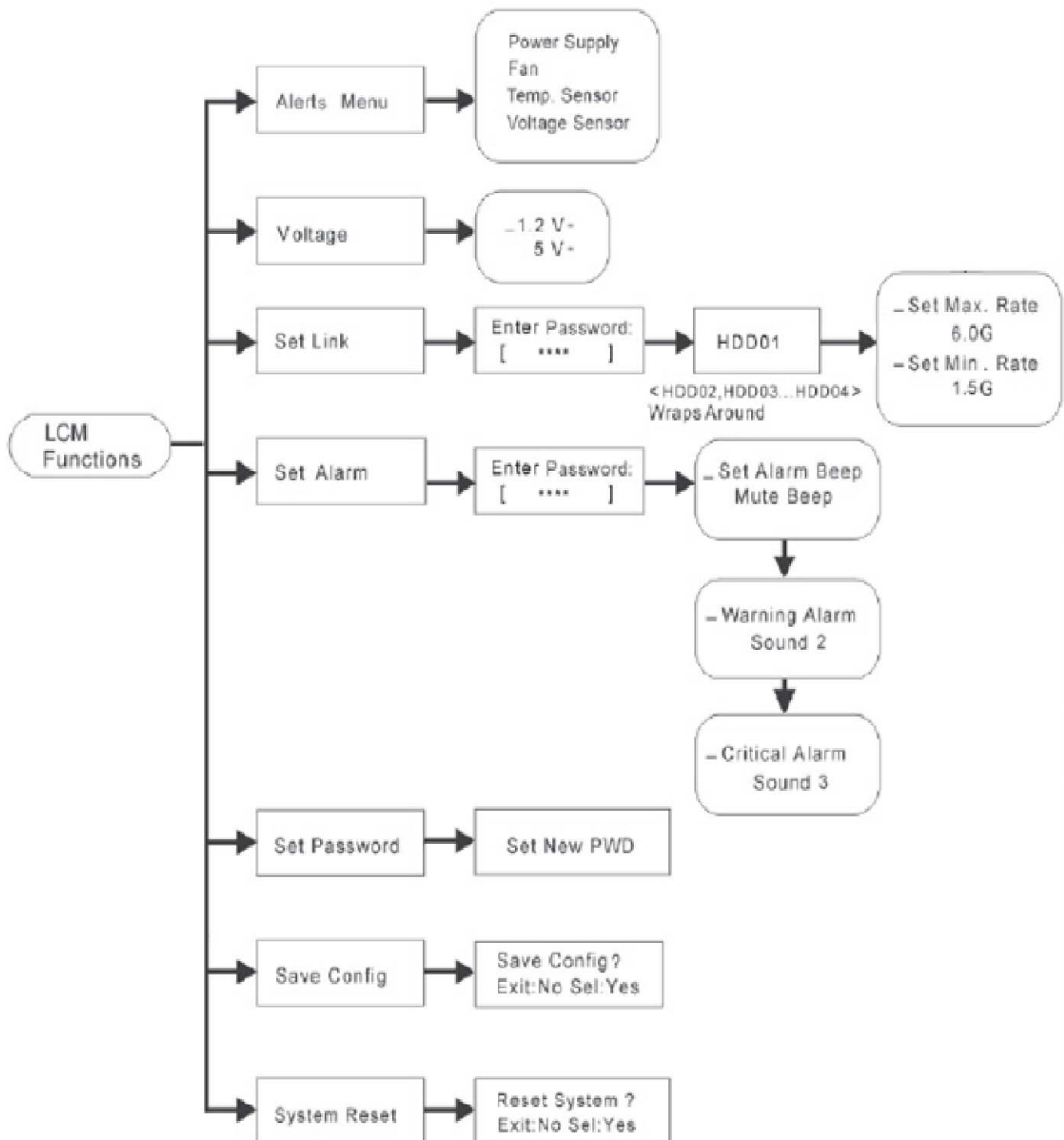
There are a variety of failure conditions that cause SAS Expander enclosure’s monitoring LED to light. The table below provides a summary of the LED to the top of keypad.

Panel LED	Normal Status	Problem Indication
Power LED	Bright green	This LED does not light up after power switched on
Busy LED (Host Access)	Blink green during host computer accessing SAS JBOD enclosure	LED never flickers
Fault LED	Unlit	Solid red

### 3.2 Navigation Map of the LCD

The password function allows user to set SAS Expander enclosure’s password for protection. Once the password is set, the user can only monitor and configure SAS Expander enclosure by providing the correct password. The **default** password for the enclosure is **0000**.

The following flow is an expansion of LCD setup item hierarchical menu.



- **Alerts Menu**

Show which device that fails to work, its sub-items could be "Power Supply", "Fan", "Temp. Sensor" and "Voltage Sensor".

- **Voltage**

Show enclosure chip voltage in status data, represent in V.

The sub-items are shown below:

1.2V- , the expander voltage is 1.2V

5V- , the expander voltage is 5V

For the setup item, the LCD key represents:

**Up** key to enter the 0 - 9 data.

**Down** key to enter "a" - "z" and "A" - "Z" data.

**Enter** key to confirm the input or ready to update a sub-item data.

**Esc/Exit** key to go back to the main selection.

- **Set Link**

Set HDD devices maximum/minimum link speed rate. The value could be 12G, 6.0G, 3.0G or 1.5G. Each HDD device link speed will have the sub-item as shown below:

\_Set Max. Rate

12.0G

\_Set Min. Rate

1.5G

- **Set Alarm**

Set enclosure buzzer warning/critical error beep style or mute the current beep. The value could be "Sound 1", "Sound 2", "Sound 3", "Sound 4" and "Sound Disabled". Sound 1 to 4 means different frequency sound. Sound disabled means disable the sound beep. The sub-items are shown below:

\_Set Alarm Beep

Mute beep

\_Warning Alarm

Sound 2

\_Critical Alarm

Sound 3

- **Set Password**

Change the enclosure LCD password. The sub-item is "Set New PWD".

- **Save Config**

Save all the updated option value into non-volatile memory area.

- **System Reset**

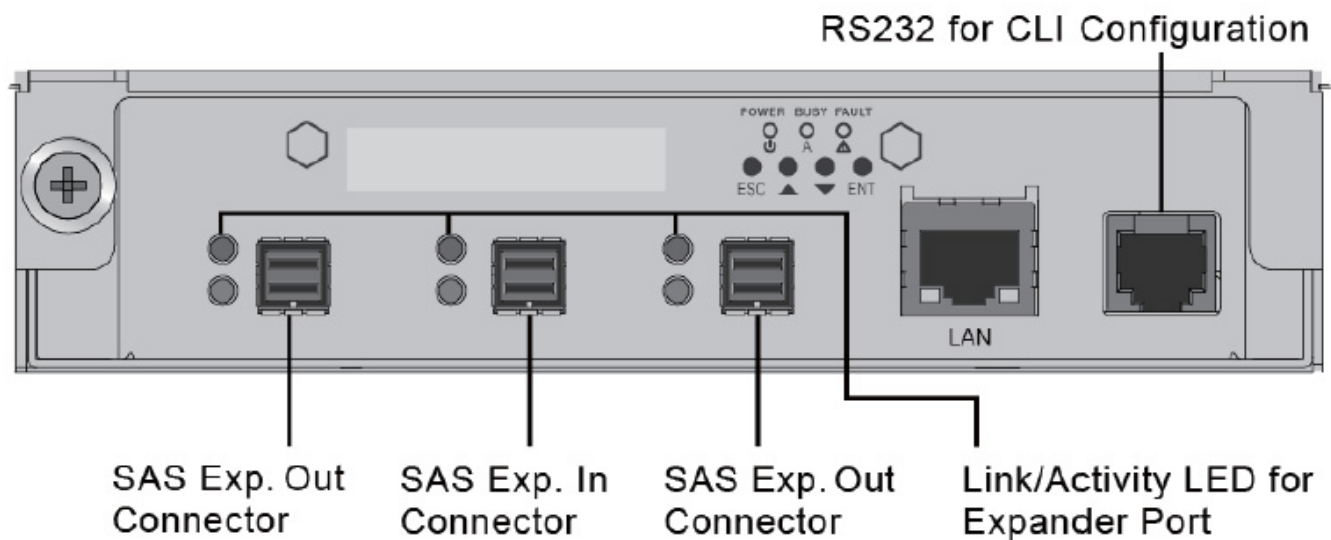
Reboot the system.

## 4. CLI Manager

This Command Line Interface (CLI) is provided to manage SAS Expander enclosure's functions. The CLI is useful in environments where a GUI interface is not available.

- **Locations of RS-232C Port**

The SAS Expander enclosure uses the RJ-11 port as the serial port interface. Use the cable included in the box to configure SAS Expander controller.



- **Establishing the Connection for the RS-232 Port**

The CLI function can be managed by using an ANSI/VT-100 compatible terminal emulation program. The appropriate installation procedure needs to be completed before proceeding to the CLI function. Whichever terminal emulation program is used, it must support the 1K XMODEM file transfer protocol.

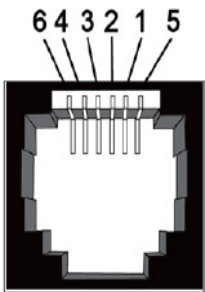
The serial port on SAS Expander enclosure's I/O shield can be used in VT100 mode. The provided interface cable converts the RS232 signal of the RJ-11 connector on enclosure into a 9-pin D-Sub male connector. A VT-100 compatible terminal or a PC running a VT-100 terminal emulation program to the serial port can access the text-based setup menu.

## 4.1 RS-232C Port Pin Assignment

To ensure proper communication between SAS Expander enclosure and VT-100 Terminal Emulation, configure the VT100 terminal emulation settings to the values below:

Terminal requirement	
Connection	Null-modem cable
Baud Rate	115,200
Data bits	8
Stop	1
Flow Control	None

The controller RJ-11 connector pin assignments are defined as below.

Pin Assignment				
Pin	Definition	Pin	Definition	
1	RTS (RS232)	4	GND	
2	RXD (RS232)	5	GND	
3	TXD (RS232)	6	GND	

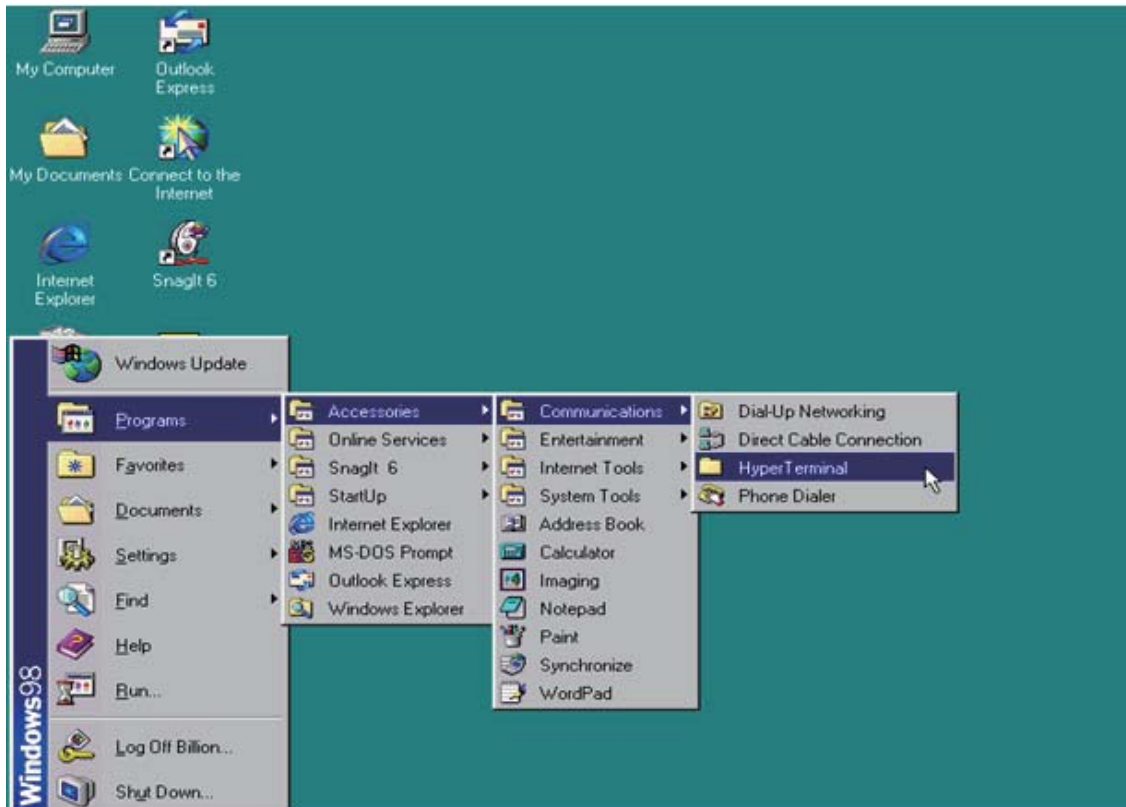
## 4.2 Start-up VT100 Screen

By connecting a VT100 compatible terminal, or a PC operating in an equivalent terminal emulation mode, all CLI administration functions can be exercised from the VT100 terminal.

There are a wide variety of Terminal Emulation packages, but for the most part they should be very similar. The following procedure is an example of setting up VT100 Terminal in Windows XP using HyperTerminal version 3.0 or higher. For Windows 7 or above, the HyperTerminal needs to be downloaded; here is the reference site: <http://en.softonic.com/s/hyperterminal-windows-7>



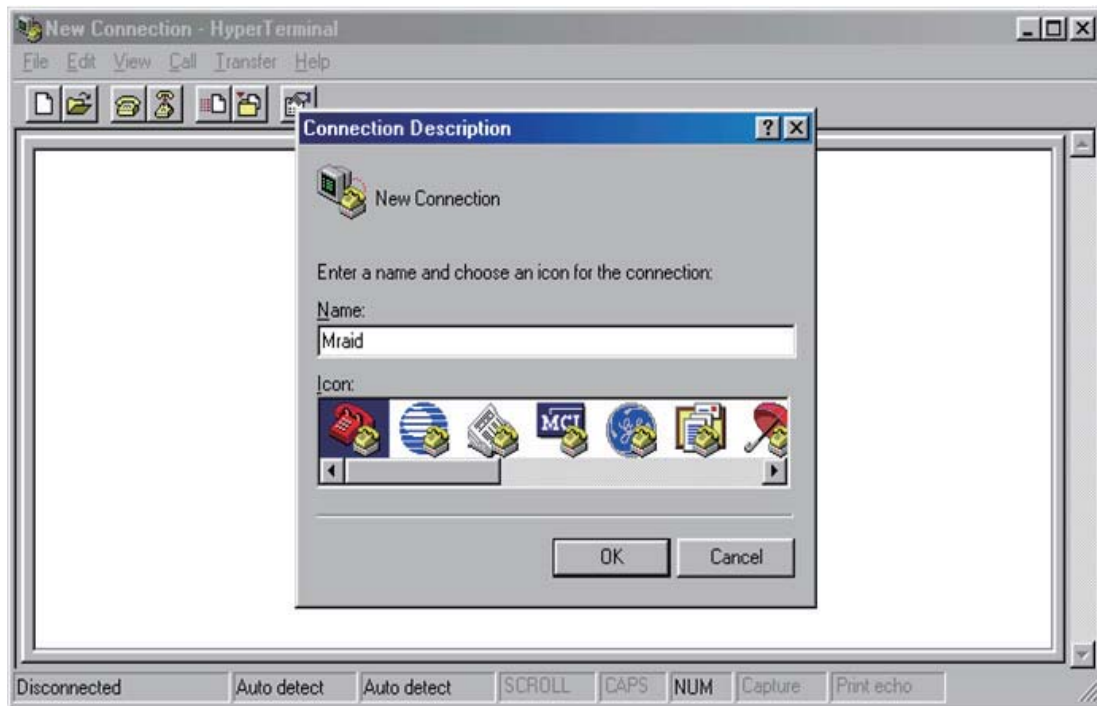
**Step 1.** Open the "Taskbar Start"/"Programs"/"Accessories"/"Communications"/"HyperTerminal". (HyperTerminal requires version 3.0 or higher).



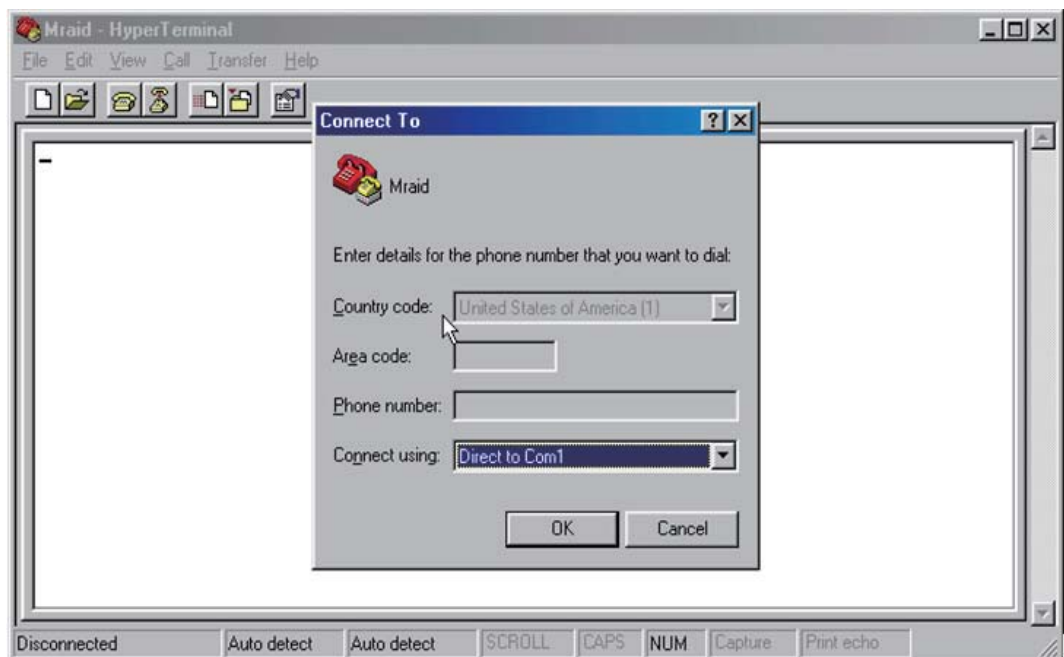
**Step 2.** Open "HYPERTRM.EXE".



**Step 3.** Enter a name you prefer and then click "OK".



**Step 4.** Select an appropriate connecting port and then click "OK".



**Step 5.** Configure the port parameter settings and then click "OK".

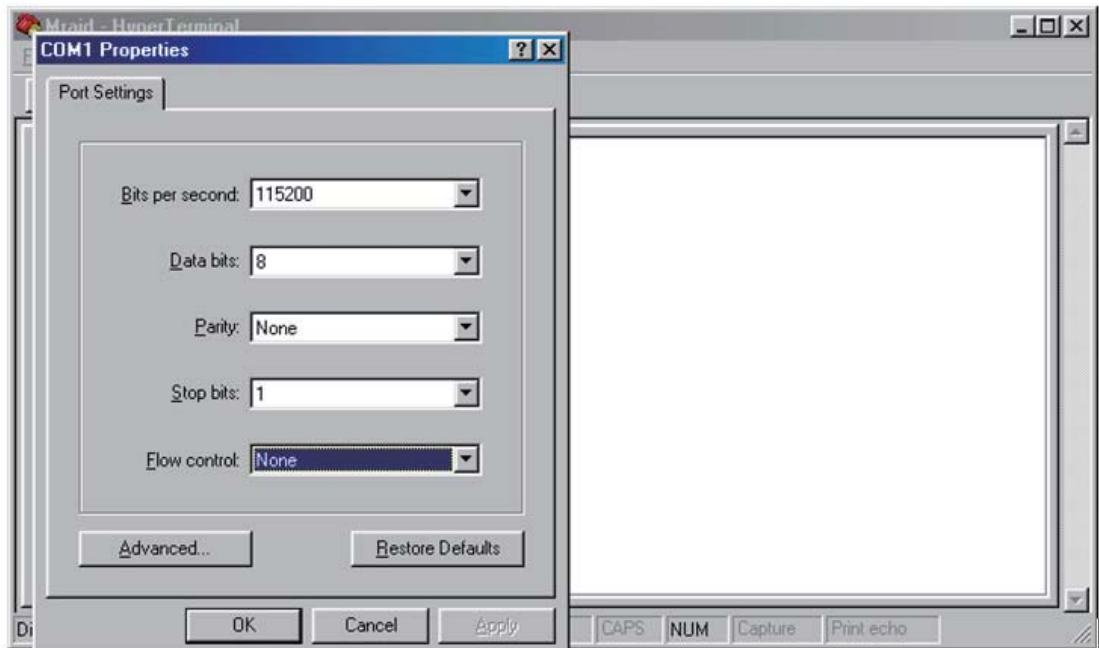
Bits per second: 115200

Data bits: 8

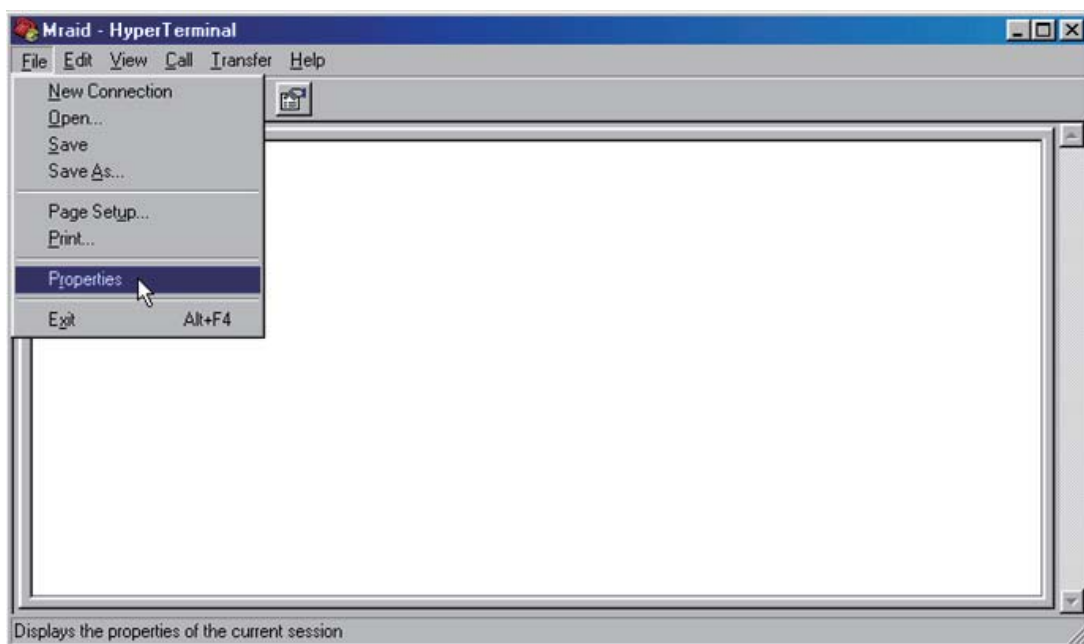
Parity: None

Stop bits: 1

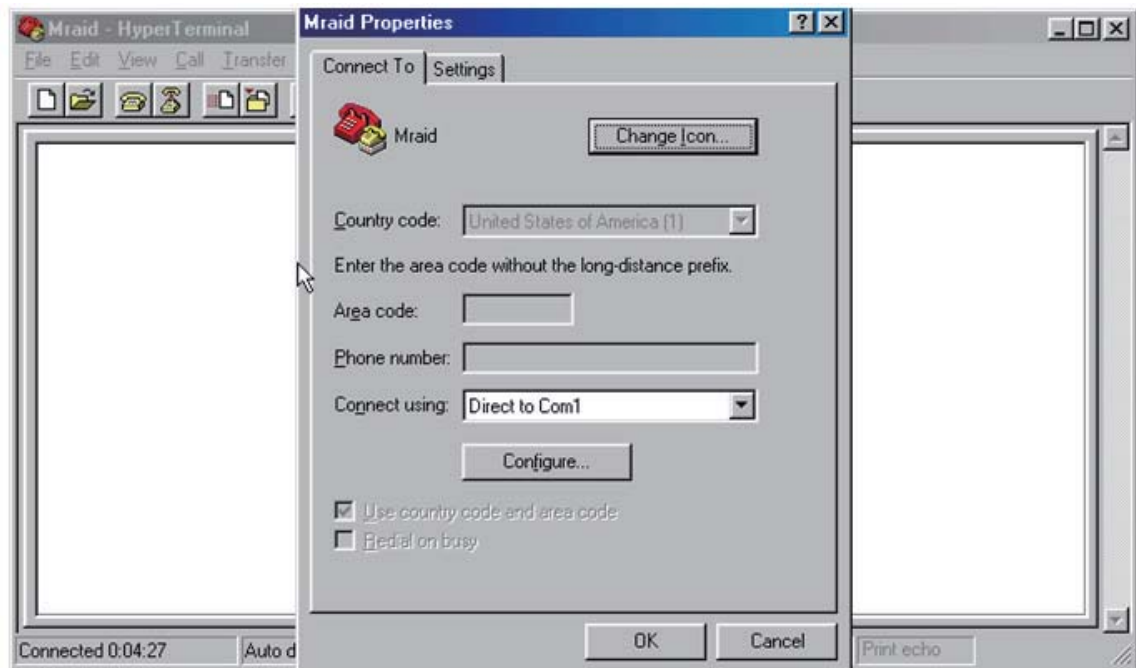
Flow control: None



**Step 6.** Open the file menu and select "Properties".



**Step 7.** Configure the "Connect To" setting.



**Step 8.** Configure the "Settings" items and then click "OK".

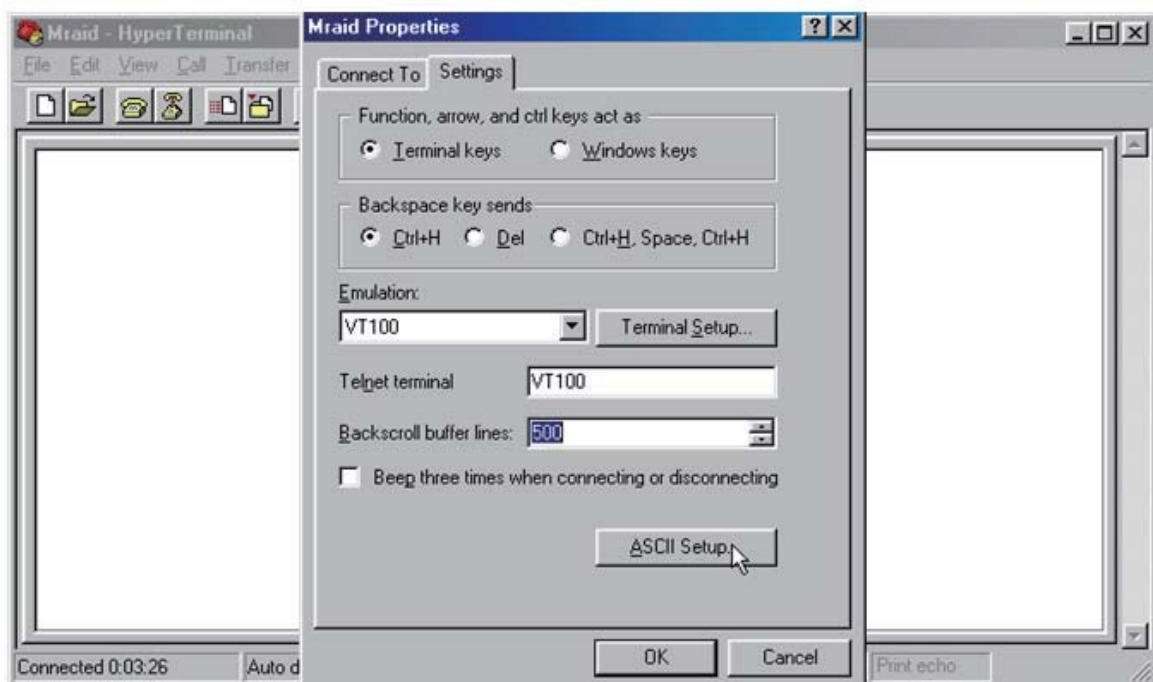
Function, arrow and ctrl keys act as: Terminal Keys

Backspace key sends: Ctrl+H

Emulation: VT100

Telnet terminal: VT100

Back scroll buffer lines: 500



## 4.3 CLI Command

This section provides detailed information on CLI function of SAS Expander enclosure. Type in lower case for all commands.

The following table gives a summary of all commands to CLI function.

Function	Command	Syntax
Set password for SAS Expander enclosure	<u>pass</u>	pass [enter]
Show system info on enclosure	<u>sys</u>	sys [enter]
Show status of each component on enclosure	<u>lsd</u>	lsd [ hdd   temp   volt   con ]
Save system setting	<u>st</u>	st [enter]
Set temperature warning limit	<u>th</u>	th [ID No.] [High warn value] [low warn value]
Set fan speed	<u>fan</u>	fan [lowest speed value] [warning speed value]
Set buzzer's sound level of enclosure	<u>bu</u>	bu [warning beep value] [critical beep value]
Set the link rate of HDD in enclosure	<u>link</u>	link [Slot No.] [max link speed] [min link speed]
Enable DataBolt™ performance for 6G/3G HDD	<u>dhpm</u>	dhpm [on or off]
Staggering HDD spin-up	<u>spin</u>	spin [delay value] [drive number]
Show event log of SAS Expander enclosure	<u>showlogs</u>	showlogs [enter]

Update the firmware of SAS Expander enclosure	<u>fdl</u>	fdl [ code   mfgb ]
Set zone group	<u>gr</u>	gr [Group No.] [Cable No.] [range of slots]
Show all phy counters	<u>counters</u>	counters [enter]
Reset all phy counters	<u>counters</u> <u>reset</u>	counters reset [enter]
Show SAS address of enclosure	<u>sasaddr</u>	sasaddr [enter]
Show list of commands	<u>help</u>	help [enter]
Exit CLI of SAS Expander enclosure	<u>lo</u>	lo [enter]

## 1. pass

The **default** password for SAS Expander enclosure is **0000**. The user can set new password for the enclosure.

Syntax: pass [enter]

```
CLI>pass
Old Password: ****
New Password: ****
Verify New Password: ****
CLI>st
```

## 2. sys

Show system information on enclosure. The information includes vendor name, model name, serial number, expander port number, product revision, chip name, customer code, manufacturer data revision, and working time.



Syntax: sys [enter]

```
CLI>sys
```

### 3. Isd

Show status of each component on enclosure. The component includes HDD, temperature, voltage, and connector.

Syntax: Isd [ hdd | temp | volt | con ]

To show status of HDD:

```
CLI>Isd hdd
```

To show status of enclosure and chip temperature:

```
CLI>Isd temp
```

To show status of SAS Expander's voltage

```
CLI>Isd volt
```

To show status of enclosure's three external HD mini-SAS connectors:

```
CLI>Isd con
```

### 4. st

Save system setting. Every time after parameter is entered into CLI, the user needs to save the parameter to take effect.

Syntax: st [enter]

```
CLI>st
```

## 5. **th**

Set warning beep for highest and lowest temperature for enclosure, SAS Expander chip, and HDD.

Syntax: **th** [ID No.] [High warning value] [low warning value]

Firstly, determine the ID number of enclosure, chip, or HDD that will be set for warning temperature.

CLI>**th**

To set temperature warning beep for enclosure:

CLI>**th** [ID number of enclosure] [high warning value in degrees Celsius] [low warning value in degrees Celsius]

CLI>**st**

To set temperature warning beep for SAS Expander chip:

CLI>**th** [ID number of chip] [high warning value in degrees Celsius] [low warning value in degrees Celsius]

CLI>**st**

To set temperature warning beep for individual HDD:

CLI>**th** [ID number of HDD] [high warning value in degrees Celsius] [low warning value in degrees Celsius]

CLI>**st**

## 6. **fan**

Set speed of enclosure's four fans.

Command: **fan**

Syntax: **fan** [lowest speed value] [warning speed value]

Speed value ranges from 1 ~ 7.

1 is the lowest speed. 7 is the highest speed.

```
CLI>fan [lowest speed value] [warning speed value]
CLI>st
```

## 7. bu

Set enclosure's buzzer sound level.

Command: bu

Syntax: bu [warning beep value] [critical beep value]

Beep value ranges from 0 ~ 3.

0 means no sound. 3 is the loudest sound.

```
CLI>bu [warning beep value] [critical beep value]
CLI>st
```

If SAS expander's buzzer beeps due to fan failure or over-temperature, and the user wants to mute it temporarily, the following command can be applied:

```
CLI>bu mute
```

## 8. link

Set the link rate of HDD in enclosure.

Command: link

Syntax: link [Slot No.] [max link speed] [min link speed]

Link speed value ranges from 9 ~ 11.

9 means 3Gbps, 10 means 6Gbps, and 11 means 12Gbps.

```
CLI>link [Slot No.] [9~11] [9~11]
CLI>st
Reboot enclosure to take effect.
```

## 9. dhpm

Enable DataBolt™ performance for 6G/3Gbps HDDs. The DataBolt™ function is disabled by default. When DataBolt™ is enabled, though the throughput will be reinforced, the IOPS performance will be affected.

Command: dhpm

Syntax: dhpm [on or off]

```
CLI>dhpm on
CLI>st
Reboot enclosure to take effect.
```

## 10.spin

Staggering HDD spin-up

Command: spin

Syntax: spin [delay value] [drive number]

Delay value can be 512 ms or 1024 ms.

```
CLI>spin [512 or 1024] [drive number]
CLI>st
```

## 11.showlogs

Show event log of enclosure

Command: showlogs

Syntax: showlogs [enter]

```
CLI>showlogs
```

## 12. fdl

Update the firmware of enclosure

Command: fdl

Syntax: fdl [code | mfgb]

To update SAS Expander firmware:

```
CLI>fdl code
```

To update SAS Expander data file:

```
CLI>fdl mfgb
```

### 13. gr

Set zone group

Command: gr

Syntax: gr [Group number] [Cable number] [range of HDD slots]

dev 1 means group 1; dev 2 means group 2.

c0 means cable0, c1 means cable1, c2 means cable2.

cable0: CH0, cable1: CH1, cable2: CH2.

```
CLI>gr dev 1 c0 1 6
```

```
CLI>gr dev 2 c1, c2 7 16
```

```
CLI>st
```

Reboot enclosure to take effect.

### 14.counters

Show all phy counters

Command: counters

Syntax: counters reset [enter]

```
CLI>counters
```

## 15. Counters reset

Reset all phy counters

Command: counters reset

Syntax: counters reset [enter]

```
CLI>counters reset
```

## 16. sasaddr

Show SAS address of enclosure

Command: sasaddr

Syntax: sasaddr [enter]

```
CLI>sasaddr
```

## 17. help

Show list of commands

Command: help

Syntax: help [enter]

```
CLI>help
```

## 18. lo

Exit CLI of SAS Expander enclosure

Command: lo

Syntax: lo [enter]

```
CLI>lo
```

## 5. Q&A

### **Question 1:**

When one of the fans breaks down, the buzzer inside the SAS Expander enclosure will beep to alert the administrator; how to mute the beep?

Answer:

Select "Set Alarm" from the LCD display, enter password "0000" (default), select "Mute Beep", and press enter to mute. The other way to mute the beep is to click the mute button from the GUI interface of RAID card.

### **Question 2:**

When one of the PSU units breaks down, power supply's buzzer will beep to alert the administrator; how to mute the beep?

Answer:

Press the green alarm mute button on PSU at rear of SAS Expander enclosure.



Note

## **Contacting Netstor Customer Service**

The Netstor website at [www.netstor.com.tw](http://www.netstor.com.tw) has technical updates, and the most current product and support information. Please check our website for the latest updates and online support files for helpful information. If further assistance is needed, please contact us in one of the following ways:

**Skype:** netstor\_fae

**E-mail:** [fae@netstor.com.tw](mailto:fae@netstor.com.tw)

**Tel:** +886-2-2917-1500